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ABSTRACT

Recent educational approaches that have career and technical education (CTE) components have integrated work-based learning (WBL) with traditional academics. Among positive effects of the association between WBL and secondary students' educational outcomes are: (1) increased attendance, (2) decreased dropout rates, (3) increased number of academic courses; and (4) higher grade point averages. The longer-term effect in students' postsecondary experiences has been too little investigated. Additional positive effects of WBL are seen in students' attitudes toward such programs and in some employment statistics. Researchers are cautious about isolating the effects of WBL, but acknowledge that it may play a crucial indirect role in improving outcomes for at-risk students. (Contains 17 references.) (AJ)

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The Impact of Work-Based Learning on Students

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Recent educational approaches that have career and technical education (CTE) components, such as Tech Prep, career academies, and High Schools That Work, have striven to integrate work experience with traditional academics; similarly, school-to-work (STW) by definition is composed of school-based learning, work-based learning (WBL), and bridging activities. How have these approaches affected their student participants both academically and personally? This *Digest* brings together research on the effects of approaches involving WBL on students' educational outcomes, attitudes, and short- and long-term employment prospects.

Students' Educational Outcomes

As a general rule, studies and evaluations have found positive associations between participation in approaches involving WBL and students' educational outcomes at both the secondary and postsecondary levels. Positive effects have been reported throughout the whole range of high school experience, from attendance to coursetaking to graduation, whereas too little time has passed for the longer-term effects in postsecondary education to be investigated.

Secondary

Typically, approaches involving WBL proceed from the premise that learning set in the real-world context of work not only makes academic learning more accessible to many students but also—even more fundamentally—increases their engagement in schooling. Such fundamental effects have been found over and over. For example, a 5-year study of 3.4 million Texas high school students (Brown 2000) found that Tech Prep students had higher attendance and on-time graduation rates and lower dropout rates than both non-Tech Prep CTE students and the general population of secondary students. Similar positive effects have been reported in reviews of studies on career academies (Stern et al. 2000) and—in spite of wide variation in the levels and details of implementation—STW programs (Hughes et al. 2001). Studies of youth apprenticeship programs also found increased attendance and decreased dropout rates (Hollenbeck 1996; Silverberg et al. 1996).

Furthermore, positive effects were not limited to persistence. Brown (2000) reported that Texas Tech Prep students completed more academic courses than non-Tech Prep counterparts. Comparing 4,700 Tech Prep and non-Tech Prep participants from eight selected Tech Prep consortia, Bragg (2001) found that in four consortia, Tech Prep students were more likely than non-Tech Prep counterparts to begin high school below the level of Algebra I; but almost all had completed Algebra I by graduation. Higher grades or grade point averages (GPAs) were reported in studies of community-based STW programs for high-risk youth (Adler et al. 1996), Rhode Island Tech Prep programs (MacQueen 1996), and youth apprenticeship (Hollenbeck 1996; Silverberg 1996). Frome (2001) analyzed data from High Schools That Work (HSTW) 1996 and 1998 assessments and found significant increases in the percentage of students who met HSTW achievement goals in math, science, and reading; higher increases in the percentage of seniors meeting achievement goals were associated with increases in the percentage of seniors completing the HSTW-recommended program of math, science, and English courses.

Postsecondary

Bragg (2001) found high rates of postsecondary enrollment 1 to 3 years after high school graduation—65 percent across all eight consortia, over 75 percent in five consortia. MacQueen (1996) reported considerably higher postsecondary participation rates for Rhode Island Tech Prep associate degree students. Studying career academies in a single urban district and nationwide, Maxwell and Rubin (1997, 2000) found that, compared to general education or traditional vocational education, career academies and the academic track both generate the same increase in the likelihood of attending a 2- or 4-year college, although career academy effects were uneven across different groups of students. Furthermore, Maxwell and Rubin concluded that their single-district results strongly suggested negative creaming—i.e., career academies had a disproportionately high enrollment of at-risk students, which could mean that the effects of career academies were understated.

Students' Attitudes

Reports of students' attitudes toward WBL have been predominantly positive. In Haimson and Bellotti's (2001) ongoing national evaluation of WBL in STW implementation, most students reported that internships and job shadowing helped them clarify their career goals. Students gave the highest ratings to WBL activities customized to their individual needs and providing one-on-one contact, rather than group worksite tours and school-based enterprises; correspondingly, paid and unpaid internships obtained through school had advantages over positions students arranged on their own. In STW studies reviewed by Hughes et al. (2001), students involved in internships and youth apprenticeships placed high value on the skills they acquired in decision making, problem solving, teamwork, interpersonal and communication skills, customer relations, performance of complex multistep tasks, and appropriate job behaviors. Likewise, in a qualitative national longitudinal study (Hernández-Gantes and Sanchez 1996) of 82 students in 5 occupational/career-oriented programs (Tech Prep, youth apprenticeship, career academies), students reported that WBL experiences facilitated acquisition and production of new knowledge, application of knowledge to real-world situations, and motivation for taking personal responsibility for their own learning and career development. Wisconsin youth apprentices (Scribner and Wakelyn 1997) typically saw their WBL experiences as providing technical knowledge and skills needed to be competitive in the high-tech, fast-changing workplace as well as more generalized skills like problem solving, critical thinking and teamwork—even though they often reported seeing no connection between WBL and classroom learning activities. Like students in many WBL studies, Wisconsin youth apprentices reported great change in important attitudes toward life, work, and themselves: greater acceptance of responsibility, improved attitudes toward work, parents, and adults, more positive perceptions of their own employability and employment options, plans for postsecondary education and careers. Similarly, Stasz and Brewer (1998) compared two different WBL programs (yearly unpaid internships and one-semester paid work experience) in one large urban school district and found that students in both programs reported the greatest benefits to be in developing appropriate work-related attitudes and behaviors such as following directions, getting along with others, and taking responsibility.

Students' Employment Prospects

Bragg (2001) found that Tech Prep graduates, whether attending college or not, were more likely to work and to work full time than non-Tech Prep counterparts, although she noted that her study occurred too early to determine the impact of postsecondary education on employment outcomes. However, in their 7-year follow-up study of high-risk youth involved in community-based STW programs, Adler et al.

(1996) reported higher employment rates in general; in particular, twice as many students were in upwardly mobile jobs. On the other hand, in their review of empirical findings on the effects of career academies, Stern et al. (2000) found mixed evidence at best on employment outcomes: either no significant differences between career academy and noncareer academy students in employment status, wages, or hours worked or relatively small differences (e.g., increase in number of hours worked per week but no difference in earnings per hour).

Isolating the Effects of WBL

Typically, studies of approaches to CTE integrating WBL with traditional academics do not attempt to isolate the effects of different components of the approach on the outcomes examined; consequently, conclusions are not and cannot be drawn on the impact of WBL activities per se. However, studies that do address the specific effects of WBL report an association between the extent or intensity of WBL activities and poorer school performance. Haimson and Bellotti (2001), for example, reported that STW students holding internships—or jobs—and working more than 20 hours per week have slightly lower GPAs than other students. Kaufman et al. (2000) found that HSTW schools in which more students participated in work-based internships or vocational teachers spent more time using outside experts to evaluate student work showed slight but statistically significant decreases in academic achievement. Both studies clearly state the caveat that poorer academic achievement may result from preexisting factors; nevertheless, they recommended caution in implementing WBL. This recommendation echoed the traditional wisdom about the effects of working during high school (reviewed in Stern 1997). Although findings vary, most agree that students who worked intensively (i.e., 15-20 hours per week or more) tended to have lower grades, do less homework, be more likely to drop out, and be less likely to complete postsecondary education. These costs must be balanced against such benefits as immediate earnings, increased likelihood of employment and higher earnings in the short term after high school, and a long-term increase in positive orientation to work.

However, that conventional wisdom has been brought into question in an analysis (Warren et al. 2000) of data from the National Education Longitudinal Study of 1988, a survey of a nationwide sample of students who were eighth-graders in 1998. Warren et al. used a simultaneous equation model to investigate both short-term and long-term effects and the possibility of a reciprocal relationship between employment of any kind—WBL or otherwise—during high school and grades in academic courses. Researchers found no evidence that working during high school affected grades in academic courses either in the short term (i.e., during the same academic year) or in the long term (two academic years later) or that students' grades affected their employment activities. Instead, researchers found that preexisting differences between students who worked intensively and those who did not (in socioeconomic status, grades, academic achievement, postsecondary education aspirations, and curriculum track) accounted for the association between employment intensity and grades in academic courses.

Conclusion

Overall, it appears reasonable to say that approaches to CTE that integrate WBL with traditional academics typically have positive effects of students' educational, attitudinal, and employment outcomes. It is difficult, if not impossible, to say exactly what role WBL plays in producing positive effects—particularly WBL involving intensive employment during high school. Nevertheless, WBL may play a crucial indirect role in improving outcomes for at-risk students by increasing their engagement in learning, whether in or out of school.

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